General

CONTENTS OF VOLUME XXXI.

CLXXI. JULY, 1910.

A Method for Measuring Ellipticity and the Determination of the Optical Constants of Metals. A. Q. Tool 1

The Second Postulate of Relativity. Richard C. Tolman 26

An Experimental Determination of the Charge of an Electron by the Cloud Method. L. Begeman 41

Heat Transfer Due to Steam Condensation. S. Leroy Brown 55

The Reflecting Power of Ice in the Extreme Infra-red Spectrum. A. Trowbridge and B. J. Spence 61

An Investigation of Non-vibratory Types of Frequency Meters. C. E. Hiatt. 68

A Laboratory Arc Lamp. Edwin F. Northrup 77

Proceedings of the American Physical Society 79

Presidential Address, "The Debt of Physics to Metaphysics," *Henry Crew;* The Isolation of an Ion and a Precision Measurement of its Charge, *R. A. Millikan;* Mica Condensers, *H. L. Curtis;* The Reliability of Magnetic Measurements on Rods, *Chas. W. Burrows;* Note on Potentiometer Design, *Frank Wenner;* A Method for Measuring or Establishing the Ten-to-One Ratio of Resistance, *Frank Wenner;* A Condition Limiting the Precision Attainable by Increasing the "Order" in the "Method of Diameters" for Wave-lengths, *Irwin G. Priest.*

CLXXII. AUGUST, 1910.

Temperature- and Potential-Pressure Relations in the Mercury Arc. C. T. Knipp 97

Some Observations on the Silent Discharge Through Air. Dicran H. Kabakjian 117

The Formation of Ozone by Silent Discharge. Dicran H. Kabakjian 122

The Thermoelement as a Precision Thermometer. Walter P. White 135

The Calibration of Copper-Constantan Thermoelements. W. P. White, H. C. Dickinson and E. F. Mueller 159

Tables of Demagnetizing Factors for Iron Rods. C. L. B. Schuddemagen 165

The Radius of Molecular Attraction. C. W. Chamberlain 170

Proceedings of the American Physical Society 183

A New Form of Rotating Sectored Disk for Spectro-photometric Measurements, *Edw. P. Hyde.*

CLXXIII. SEPTEMBER, 1910.

On the Determination of the Wave-length and Logarithmic Decrement of the Linear Electrical Oscillator with the Interferometer. James E. Ives 185

The Nature of Spark Discharge at Very Small Distances. Elmer H. Williams 216

Photographic Photometry and Some Interesting Photographic Phenomena. Charles F. Brush 241

Magnetic Properties of Heusler Alloys. Edward B. Stephenson 252

Temperature Coefficients of Electrical Resistance. II. Albert A. Somerville 261

The Dielectric Constant of Ice, for Long Waves, at Temperatures near the Melting Point. Phillips Thomas 278

The Rotary Power of Quartz, Cinnabar, and Nicotine at Low Temperatures. F. A. MOLBY 291

Proceedings of the American Physical Society 311

A Direct-Reading Candle-Power Scale for Precision Photometers, *George W. Middlekauff;* A Modified Method for the Determination of Relative Wave-lengths Especially Adapted to the Establishment of Secondary Spectroscopic Standards, *Irwin G. Priest;* Selective Radiation of Platinum, *Edw. P. Hyde;* A Characteristic of Spectral Energy Curves, *W. W. Coblentz;* On the Selective Reflection of Oxides, *Leighton B. Morse.*

CLXXIV. OCTOBER, 1910.

A Method of Measurement of the Peltier E.M.F., in Absolute Units. HAROLD C. BARKER 321

A Method of Measuring the Intensity of Sound. W. M. BOEHM 329

A Determination of the Correction for the Open End of a Cylindrical Resonator. W. M. BOEHM 332

A Proposed Method of Calibration of Optical Pyrometers. G. A. SHOOK 342

Some Phosphorescent Salts of Cadmium with Sodium. C. W. WAGGONER 358

A Study of the Short-Time Phosphorescence of Certain Compounds. CARL A. ZELLER 367

Studies in Luminescence. XII. The Absorption of Alcoholic Solutions of Eosin and Resorufin. EDW. L. NICHOLS and ERNEST MERRITT 376

Studies in Luminescence. XIII. The Specific Exciting Power of the Different Wave-lengths of the Visible Spectrum in the Case of the Fluorescence of Eosin and Resorufin. EDW. L. NICHOLS and ERNEST MERRITT 381

Infra-red Absorption Spectra. WILLIBALD WENIGER 388

A Study of Some of the Elastic Properties of a Platinum-Iridium Wire. L. P. SIEG 421

The Effect of Temperature on Fluorescence and Absorption. R. C. GIBBS 463

CLXXIV. NOVEMBER, 1910.

A New Method of Determining the Optical Constants of Metals, and the Optical Constants of Silicon. L. R. INGERSOLL and J. T. LITTLETON, JR 489

Studies in Luminescence. XIV. Further Experiments on Fluorescence Absorption. EDW. L. NICHOLS and ERNEST MERRITT 500

A Noteworthy Interrelation of Illuminating Power, Density, and Viscosity of Certain Kerosene Oils. G. W. STEWART 513

Some Electrical Properties of Selenium. III. The Influence of Temperature upon the Recovery. LOUISE S. MCDOWELL 524

On the Initial Velocity of Electrons as a Function of the Wave-length in the Photoelectric Effect. JAKOB KUNZ 536

Some Calorimetric Methods. WALTER P. WHITE 545

Lag Effects and Other Errors in Calorimetry. WALTER P. WHITE 562

The Molecular and the Frictional Flow of Gases in Tubes. Discussion by MARTIN KNUDSEN and WILLARD J. FISHER 586

On the Definition of a Perfect Gas. Remarks on the Paper of A. G. Webster and M. A. Rosanoff. G. BAKKER 589

The Grating Interferometer. C. BARUS and M. BARUS 591

Proceedings of the American Physical Society 599

Minutes of the Fifty-Third Meeting; A New Method of Measurement of Small

Angles, *C. W. Chamberlain*; Note on "Changes in Density of the Ether and Some Optical Effects of Changes in Ether Density," *Charles F. Brush;* Preliminary Report on Temperature Coefficient of Resistivity of Copper, *J. H. Dellinger;* Certain Peculiarities of the Discrepancies Among Recent Wave-length Determinations, *Irwin G. Priest;* Discharge from Hot CaO, *C. D. Child;* The Freezing of Water Under High Pressure, *P. W. Bridgman;* The Action of Mercury on Steel at High Pressures, *P. W. Bridgman;* The Limit of Visibility in the Red, *Henry Phelps Gage;* Torsional Rotatory Polarization, *A. W. Ewell;* The Positive Thermions Emitted by the Salts of the Alkali Metals, *O. W. Richardson;* Gravitation and the Electron Theory, *O. W. Richardson;* The Scientific Results of the First Cruise of the "Carnegie" in Magnetism, Electricity, Atmospheric Refraction, and Gravity, *L. A. Bauer.*

CLXXV. DECEMBER, 1910.

Absolute Formulæ for the Mutual Inductance of Coaxial Solenoids. G. R. OLSHAUSEN 617

Further Studies of the Firefly. HERBERT E. IVES 637

The Discharge of Electricity through Gases at Various Temperatures. R. F. EARHART 652

On the Question of the Motion of the Ether in a Steady Electromagnetic Field. S. J. BARNETT 662

A Sensitive Thermopile. B. J. SPENCE 666

Some Calorimetric Apparatus. WALTER P. WHITE 670

A Test of Calorimetric Accuracy. WALTER P. WHITE 686

New Books 702

Index 703

Errata 710